DOCUMENT RESUME

ED 166 591 CG 013 200

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TITLE Self-Evaluative Reactions: The Role of Personal Valuation of the Activity.
SPONS AGENCY National Inst. of Mental Health (DHEW), Rockville, Md.
PUB DATE [77]
NOTE 22p.

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Individual Characteristics; *Performance Factors; Personal Adjustment; Personal Values; *Reactive Behavior; *Self Esteem; *Self Evaluation; Speaking Activities; *Task Performance; *Young Adults

ABSTRACT

The differential activation of self-evaluative reactions to performance attainments or tasks varying on their relevance for subjects' sense of personal adequacy was investigated. All subjects (N=97) spoke extemporaneously on prescribed topics and received the same random sequence of performance scores. The same task was designated as assessing cognitive and analytic abilities for one group and reflexive conditioning for another. Subjects received a range of scores and their self-approving, neutral, and self-critical reactions to their performance attainments were recorded. Subjects in the analytic task condition were more self-approving for high performance attainments and more self-derogating for low attainments than were subjects in the reflexive task condition. Furthermore, unlike the analytic subjects, reflexive subjects did not react self-critically, on the average, for even the lowest performance levels. The results support the prediction that self-evaluative consequences are selectively applied depending upon the relevance of the task for subjects' sense of personal adequacy. (Author)

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Self-Evaluative Reactions:

The Role of Personal Valuation of the Activity[1]

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Self-Evaluative Reactions:

The Role of Personal Valuation of the Activity

The process whereby people may modify the behavior of others has been studied extensively over the past decades. However, it is only recently that researchers have begun to investigate how people may systematically alter their own behavior (Bandura, 1976; Kanfer, 1970). This research has identified at least three component processes in the phenomenon of self-regulation (Thoreson & Mahoney, 1974). First, before persons can change their behavior, they must self-monitor its occurrence. Second, once people have observed the frequency and quality of their behavior, they must set an explicit goal against which to evaluate it. Finally, persons must provide self-administered consequences contingent upon meeting or failing to meet the goals that they have set.

Although self-monitoring and goal setting are necessary constituents in the process of self-regulation, they do not have the same direct effect upon behavior that self-applied consequences appear to have: While studies have found that people who self-reward their behavior conditional upon attaining a specific level of performance achieve a significant change in behavior, those who merely self-monitor, or even self-monitor and set goals, do not (e.g., Bandura & Perloff, 1967; Felixbrod & O'Leary, 1973; Glynn, 1970).

Because of the importance of initially establishing the existence of the phenomenon of self-reinforcement on the basis of directly observable events, most of the work in self-regulation has focused on the role and

effectiveness of self-administered tangible consequences (such as money, food, or privileges). However, just as externally-applied evaluative consequences (such as praise) can be as effective as tangible ones (e.g., Thomas, Becker, & Armstrong, 1968), there is some evidence that self-evaluative consequences are effective in altering behavior (Masters, Furman & Barden, 1977; Masters & Santrock, 1976).

And indeed, self-evaluative consequences have some theoretical advantages over tangible consequences as a means of studying self-reinforcement. Self-approval (positive self-evaluation) and self-criticism (negative self-evaluation) probably play a larger role in people's daily lives than does self-administration of tangible reinforcers. Additionally, in many ways, self-evaluative consequences are the prototypical self-reinforcers. First, they are always available to the individual. Second, their conditional application strictly depends upon the individual's own judgement: Since self-evaluation is ordinarily covert, it is likely that a minimum of external control contributes to its maintenance. Third, self-evaluative reactions can follow behavior with an immediacy that tangible consequences cannot.

Self-administered consequences (tangible or evaluative) are not presumed to change behavior automatically (Bandura, 1977). Negative discrepancies between performance level and performance standard elicit self-criticism which prompts corrective efforts so that subsequent performances more nearly match the person's standards. Positive discrepancies elicit self-approval which mediates between the behavior and any delayed tangible reinforcers through its informational and motivational properties.

However, behaviors cannot be expected to elicit self-evaluative consequences automatically any more than they automatically elicit the

self-application of tangible consequences (Bandura, Mahoney, & Dirks, 1976). It is important to determine how people discriminatively create contingencies for meeting performance standards, and thus for generating performances which match their standards.

The factors which facilitate activation of self-evaluation for performance attainments that people value highly have already received some experimental attention. For example, weight loss by obese persons, and presumably self-evaluative reactions, are facilitated when the performance standard is proximal in time to the performance itself (Bandura & Simon, 1977). However, it is likely that no matter how proximal a goal, self-evaluation, and thus behavior change, will not occur under all conditions One factor that has been postulated to mediate the discriminative activation of self-evaluative reactions is the subjects' valuation of the activity (Bandura, 1977). It is assumed that the more relevant performances are to one's own sense of personal adequacy the more likely are self-evaluative reactions to be engaged.

The present study was designed to test this hypothesis by having two groups of subjects perform an identical task, attain the same levels of pre-arranged performance feedback, and respond self-evaluatively to achieving each performance level. The only difference between the two groups was the putative psychological function involved in generating high levels of performance — analytic and creative abilities in one condition and reflexive conditioning in the other. It was predicted that subjects who presumed that their performance reflected analytic ability would respond self-evaluatively to different performance levels more discriminatively than would subjects who presumed that their attainments signified reflexive conditioning.

Method

Subjects

Undergraduate students were chosen at random from introductory classes in psychology, biology, and anthropology. Their participation in this study was solicited by phone and those persons who agreed to participate were randomly assigned to conditions. Ten subjects were discarded for failure to follow the experimenter's instructions; one subject was discarded because his data were misplaced. Thus 56 females and 41 males, with a mean age of 18.9, served as subjects. The two groups in this experiment did not differ significantly in average age, proportion of subjects discarded, nor in the proportion of males and females that comprised them.

Procedure

Each subject was escorted individually into the experimental room by one of the two female experimenters. The subject and experimenter sat facing each other on opposite sides of a table. Before beginning the experiment, subjects were administered an adjective checklist (Zuckerman & Lubin, 1965) to ascertain their current mood. Lack of variation in subjects' moods prevented investigation of this variable and it will not be discussed further.

All subjects performed the same speech task under the identical instructions except for the characterization of the psychological functions involved in performing the activity. Accordingly, all subjects were handed 14 cards, one at a time. Each card stated a position for or against some topical issue (e.g., abortion, marijuana, increased course requirement, etc.) on which subjects were requested to speak. Subjects were given 30 seconds before beginning each speech in order to organize their thoughts. They were then asked to start speaking and to continue until the experimenter signalled them to stop at the end of one minute.

After each speech, subjects were given a score from 10 to 16, ostensibly reflecting the level of their performance on the task. In actuality, all subjects received the same sequence of performance scores. The order of the 14 scores was determined using a table of random permutations and each score was given twice. All subjects spoke in favor of seven topics and against seven others. Furthermore, each subject received the whole range of scores, 10 through 16, for speeches arguing in favor of some position and the whole range of scores for speeches arguing against some position.

This task was chosen because extensive pretesting proved it to be possible to structure it convincingly as assessing either analytic or conditioning functions.

Analytic Condition . Subjects (n = 52) in this condition were led to believe that performance attainments on the task reflected the quality of their cognitive and analytic skills. They were told that the impetus for the current study came from the fact that many college students have never learned to write well. This deficit in writing ability was presented as a critical problem because sloppy writing too often reflects sloppy thinking which detracts from intellectual performances. They were further told that when people think clearly and analytically, it is reflected in both their writing and in their speech. These subjects were informed that the writing behavior of Stanford students has been extensively studied, but that their speech has not. The current study was presented to them as filling just such a gap.

Subjects were told that this research was facilitated by results of studies on the thinking patterns of highly intelligent and creative people. Twenty specific cognitive components were supposedly identified

which enable investigators to determine just how astute and creative a person's thinking patterns are.

After subjects were read instructions for giving their speeches they were told that the experimenter would be scoring which of the 20 components of thinking quality they used in each of their speeches while they were in the process of speaking. They were told that they only had to use a component once for it to be counted toward their total score; also, that repetitions of previously used components would not be used in determining their score.

Reflexive Condition. Subjects (n = 45) assigned to this condition were led to believe that performance attainments on this task reflected an automatic response to outcome feedback. They were told that the study was designed to investigate the possibility that delayed global feedback may influence the future verbalization of certain words in the context of meaningful discourse through "automatic" conditioning. Subjects were informed that previous studies of verbal conditioning have examined only how immediate feedback strengthens responses. The verbal conditioning effect was presented as being entirely the consequences of a lower form of learning in which responses are influenced by reinforcing consequences without requiring any thought or conscious involvement on the part of the subject. Since it is an automatic type of conditioning, it is unrelated to the more cognitive types of learning that predict intellectual performance.

Subjects were told that the global feedback they were to receive would take the form of a score from one to twenty given at the end of each one-minute speech that they were to present: The score would tell them how many of 20 predetermined classes of words they employed in their

speech. It was pointed out that these 20 word classes were not necessarily related in any meaningful way to the positions they would be defending.

Like the scoring instructions given to the Analytic group, the Reflexive subjects were told that the experimenter would be scoring which of the 20 predetermined word classes they used in each speech. They were told that they only had to use a word class once for it to be counted toward their total score; also, that repetitions of previously used word classes would not be used in determining their score.

Self-Evaluative Reactions. Subjects were told that some people may have reactions to their own performances which may or may not affect their future performances. Subjects were informed that we wanted to determine if this was true or not. Accordingly, all subjects were told that at the end of each of their speeches, the experimenter would tell them how many of the cognitive components (Analytic group) or conditioning word classes (Reflexive group) they used and that they were to express their self-evaluative reaction to attaining their performance level. They were specifically told not to express their reactions to their speech itself nor to compare their score with how intuitively well they felt they had spoken. It was emphasized that what was required was their evaluative reaction to having used the number of cognitive components or word classes that their score signified.

All subjects were informed that the score level "20" signified the highest possible performance, and that "13" signified an average performance. Subjects were told that when they were satisfied with their performance attainment they were to record their self-approval as a number from one to ten on a special form. In analogous fashion, when they were dissatisfied with their performance attainment, they were to record their self-criticism as a number from negative one to negative ten. The larger the absolute value of the number, the more extreme was the subject's self-evaluative reaction.

Thus, a negative ten signified an extremely self-critical reaction; a positive five signified a moderately self-approving reaction. Zero was used to signify indifference to performance attainment on the part of the subject.

Results

The results of the repeated measures ANOVA performed on the data disclosed a significant effect of performance level, F (6, 570) = 140.32, p <.00001. The higher the performance level, the stronger were subjects' self-approving reactions. There was no main effect of treatment condition. However, the predicted interaction was obtained: Subjects responded with differential reactions to performance attainments depending upon whether they signified analytic abilities or automatic conditioning. F (6, 570) = 4.57, $p < .0002$. Figure 1 depicts the significant interaction effect.

Insert Figure 1 about here

The graph shows that when subjects' self-evaluations are plotted against performance level, the slope is steeper when the attainments are presumed to reflect analytic skill rather than reflexive responding. In other words, subjects in the Analytic condition appear to have made much finer discriminations between differences in performance level for purposes of self-evaluation than did subjects in the Reflexive condition. This was confirmed by post hoc comparisons (paired-sample t-tests with alpha corrected for multiple comparisons) of subjects' self-evaluations for adjacent performance levels (i.e., scores 10 vs. 11, 11 vs. 12, etc.). The Analytic group responded with significantly different self-evaluations for three of the six comparisons (11 vs. 12, 13 vs. 14, and 14 vs. 15), whereas the Reflexive group did so for none of them.

Further perusal of Figure 1 shows that for no scores, even the very lowest ones, did the Reflexive subjects as a group react self-critically to their performances. In contrast, low performances by the Analytic subjects elicited self-critical reactions. Superior performances activated the reverse differences in self-evaluative reactions: Analytic subjects were more self-approving than their counterparts in the Reflexive condition for equivalent performance attainments.

It will be recalled that subjects were scheduled to attain each performance level twice. The analysis of variance disclosed that self-evaluative reactions following each of the two occurrences of each score were differentially affected by the level of the performance, F (6,570) = 16.28, $p < .00001$. Post hoc comparisons showed that subjects in both groups were significantly more self-critical the second time they achieved the lowest performance level. However, for performances near the mean, subjects were more self-satisfied with the second occurrence than with the first. In the case of superior performances, subjects were equally self-satisfied with the first and second occurrences.

An additional finding was that a large proportion of subjects in the Reflexive condition (65%) made more extreme self-evaluations (i.e., farther away from zero in either the positive or negative direction) in the second half of the experimental session than in the first half for the same objective performance levels (Sign test with correction for continuity, z = 1.644, p = .05, one-tailed). Interestingly, the Analytic group showed no indication of changing the strength of their self-evaluative reactions from the first to the second halves of the session.[3]

Analysis of variance showed that female subjects were significantly more self-satisfied with their performance attainments than were male subjects, F (1, 93) = 10.79, $p < .001$. However, there was no significant interaction of gender with any other factor.

Procedural Checks

Post-session questionnaires demonstrated that subjects believed the rationales they were given for performing the speech task. Subjects were asked whether or not they had any idea as to the specific cognitive components (Analytic group) or word classes (Reflexive group) on which their performances were being scored. Of those people who verbalized specific hypotheses on the matter, the Analytic subjects overwhelmingly postulated cognitive abilities (e.g., logic, clarity and organization of thought), whereas the Reflexive subjects did not (87.5% vs. 18.8%, respectively; Fisher's exact probability test, $p = .0008$).

External validation was obtained by having 19 independent introductory psychology students rate how important it would be to them to do well on the speech task under each of the two justifications. The sequence in which they read the two descriptions was counterbalanced. A paired-sample t-test on the differences produced t (18) = 2.91, $p < .01$: The judges reported that doing well on the Analytic task would be significantly more important to them than doing well on the Reflexive task.

Discussion

The present study provided support for the hypothesis that self-evaluative reactions are discriminatively activated by performance outcomes. Furthermore, this activation is tied to the nature of performances'

implications for personal adequacy. When performance outcome has significance for people's feelings of self-merit they discriminate very well between even small variations in performance attainments for purposes of self-evaluation, whereas otherwise they do not.

This finding elucidates one of the factors operating in self-motivation. To illustrate, it is a common occurrence in any classroom or work place that people of similar abilities do not always attain similar levels of performance. This may occur even though they are under identical external contingencies. It is very likely that this differential performance is in part due to the relevance the task outcome has for the different individuals' sense of personal merit. Persons for whom the task has much significance probably apply self-evaluative reactions contingent upon meeting or failing to meet the performance goal. Their self-criticism for inadequate expenditure of effort as well as self-approval for adequate expenditure probably motivates them to work harder (and thus to achieve more) than the individuals who do not make strong self-evaluations (cf. Masters & Santrock, 1976).

It is of interest that even the subjects in the Reflexive group varied somewhat in their self-evaluations. It is possible that there are few tasks, which one can induce another to do, for which the person will not begin to respond evaluatively given time and response feedback. This hypothesis is supported indirectly by consideration of the wide variety of seemingly "irrelevant" tasks with which people imbue evaluative significance: for example, the solving of crossword puzzles, or throwing of frisbees. It is unlikely that such activities initially had great relevance for the individuals who are currently avid fans.

The present study provides evidence that the Reflexive subjects did, in fact, imbue the speech task with significance over the course of the session. These individuals tended to make more extreme self-evaluations in the second half of the session than in the first for the same objective performance levels. It appears that they were intially indifferent, but that they cared more about doing well as they became engrossed in performing the task. This may have implications for the process whereby certain initially uninspiring tasks acquire "intrinsic" interest.

Further evidence suggestive of the dynamic nature of goal setting, and hence of self-evaluative reactions, is found in the present study. For example, it is possible that subjects were less self-satisfied with the second than with the first occurrence of the lowest score because of their intervening experience in getting higher scores. Similarly, mean performance attainments seemed more praiseworthy on the second occurrence since subjects had received much lower scores in the interim. In order to determine how people change their performance standards depending upon their experience, it would be of interest in future studies to monitor possible changes in goal levels as subjects' familiarity with a task increases.

It is important to recall that even though the Reflexive subjects expressed some variation in self-evaluations, their reactions, on the average, were all approving ones. Only the Analytic subjects responded self-critically. It is possible that if Reflexive subjects had received scores much lower than 10 they would have made some self-critical responses. However, in the present study self-criticism was only employed as a contingency for poor performances on the task that had high personal relevance. This find-

ing may relate to the intuitive observation that not every objective "failure" will lead a person to become depressed. Sub-standard performances on tasks having much personal significance will elicit self-criticism which, if prolonged, may result in a depressed mood.

The results of the present study have implications for previous investigations of self-regulated behavior change. As mentioned earlier, both self-monitoring and self-monitoring in conjunction with goal-setting have produced variable effects in the past. Several dimensions can bring order to this set of results. One important factor is whether or not a given activity engages covert goal setting and self-evaluative consequences. As the present study suggests, people will self-apply evaluative consequences for performance outcomes that bear on their sense of adequacy. These findings might help to explain why self-monitoring of intellectual activities causes an increase in performance (Johnson & White, 1971), whereas self-monitoring of behaviors indicative of "insufficient willpower" causes a decrease in those behaviors (Sobell & Sobell, 1973).

It has been previously documented that people respond with differential self-evaluative reactions for the same objective behavior depending upon how they construe their conduct (Bandura, Underwood, & Fromson, 1975; Zimbardo, 1969). Thus people can selectively disengage moral self-reactions by obscuring the relationship between actions and their effects, by dehumanizing the victim, and by misrepresenting the social consequences of their actions (Bandura, 1976). Until the present study, however, it has been less well documented that people differentially engage their evaluative self-reactions for behaviors that do not necessarily have "moral" rele-

vance, which are performed in the same physical environment, and which are under identical schedules of immediate external consequences.

It seems likely that this differential engagement of self-evaluative mechanisms is under the control of cues that have been previously learned to signal functionally different occasions. Social learning theory (Bandura, 1977) speaks of "generic" performance standards, for example achievement standards ("motives"), which generalize to new occasions without having to be trained explicitly (Bandura & Mahoney, 1974).

Much research on self-reinforcement, and self-evaluation specifically, has neglected to take these generic standards into account while attempting to delimit the parameters of self-evaluation (e.g., Kanfer & Duerfeldt, 1968; Marston, 1969). Such studies typically call for accuracy judgements on the part of the subjects. When they judge their responses to be correct, subjects are presumed to be self-approving. Analogously, when they judge their responses to be incorrect, they are presumed to be self-critical. Even though the logical problems inherent in equating accuracy judgements with self-evaluative reactions have been lucidly pointed out (Bandura, 1971), researchers continue to use this paradigm (e.g., Rozensky, Rehm, Pry, & Roth, 1977). The results of the present experiment provide an additional argument that this is a questionable practice. The studies using the "accuracy" paradigm have not employed tasks that participants ordinarily consider to be personally significant. While it is probably of value to investigate self-regulation of neutral performances as well as personally significant ones, experimenters should specify which they are studying. As the results of the present experiment show, one will draw different conclusions regarding the operation of self-evaluative systems depending upon the individual's personal valuation of the activity.

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Footnotes

[1]This research was supported by Public Health Research Grant MH-5282 from the National Institute of Mental Health.

The author wishes to thank Albert Bandura for his invaluable advice. Thanks also go to Richard Bootzin, Irvin Brown, David Bunker, and Gerald Long for their helpful comments on earlier drafts of this article. Finally, the author wishes to express her appreciation to Janet Albaum for her assistance in data collection.

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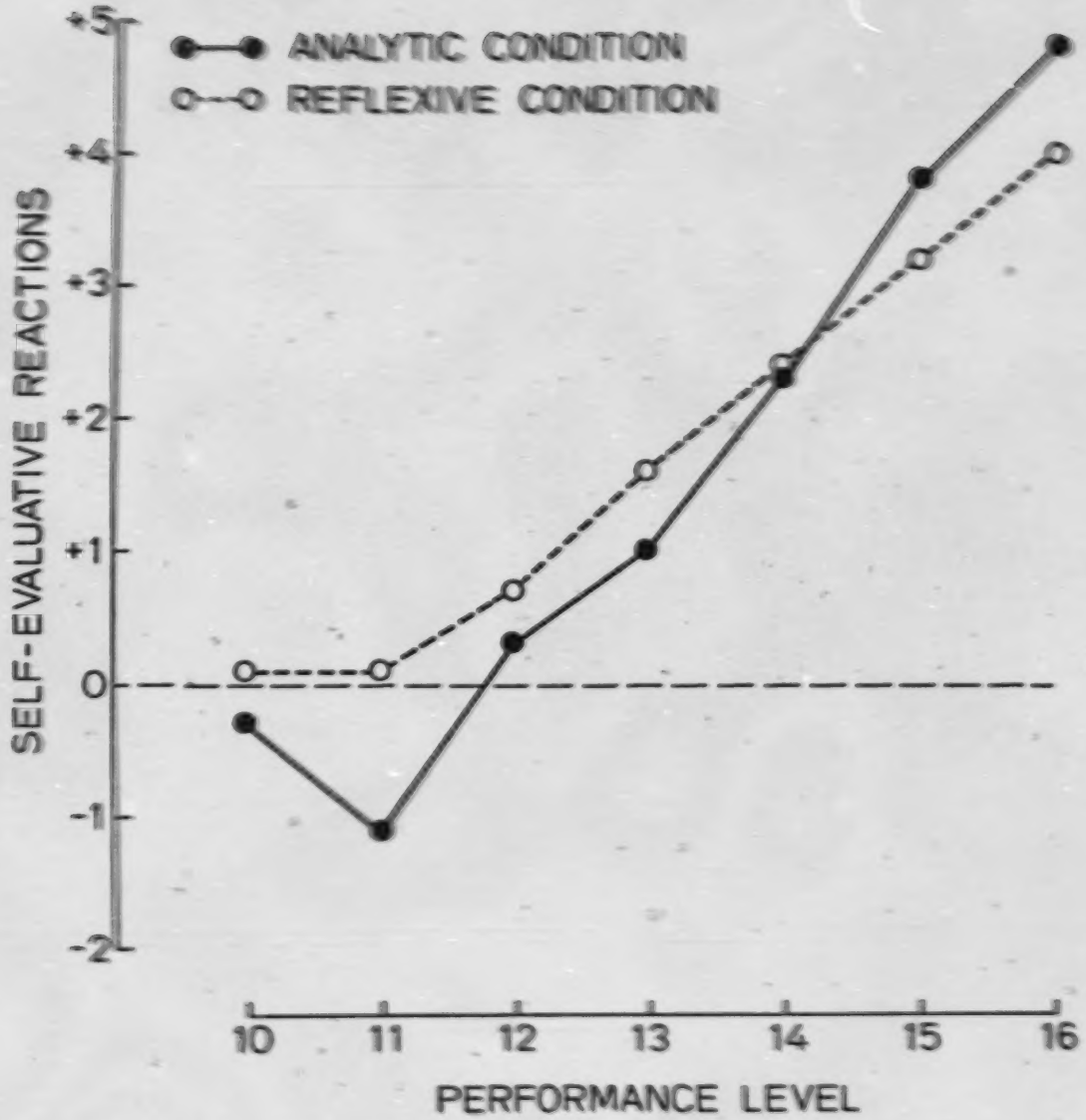
[3]Because of the random determination of the order of the performance levels, only three of the seven possible scores occurred in both the first and second halves of the experimental session. The Sign Test was performed on the basis of the sum of the absolute values of these three scores in each half of the session for each subject. Although four of the scores only occurred in one of the two halves of the session, the average scores that subjects received did not differ significantly between the first and second halves of the session, $t(12) = 1.64$, $p < .15$.

Figure Caption

Figure 1. Mean self-evaluative reactions of the Analytic and Reflective subjects for each performance level, F (6, 570)=4.57, $p<.0002$. Positive numbers indicate self-approval; negative numbers indicate self-criticism.


ANALYTIC CONDITION
REFLEXIVE CONDITION
SELF-EVALUATIVE REACTIONS
+5
+4
+3
+2
+1
0
-1
-2
10
11
12
13
14
15
16
PERFORMANCE LEVEL